WHAT'S THE MAINLAND MARKET FOR CHINESE TARO AND WHO'S THE COMPETITION?

James R. Hollyer
Department of Agricultural & Resource Economics
University of Hawaii at Manoa

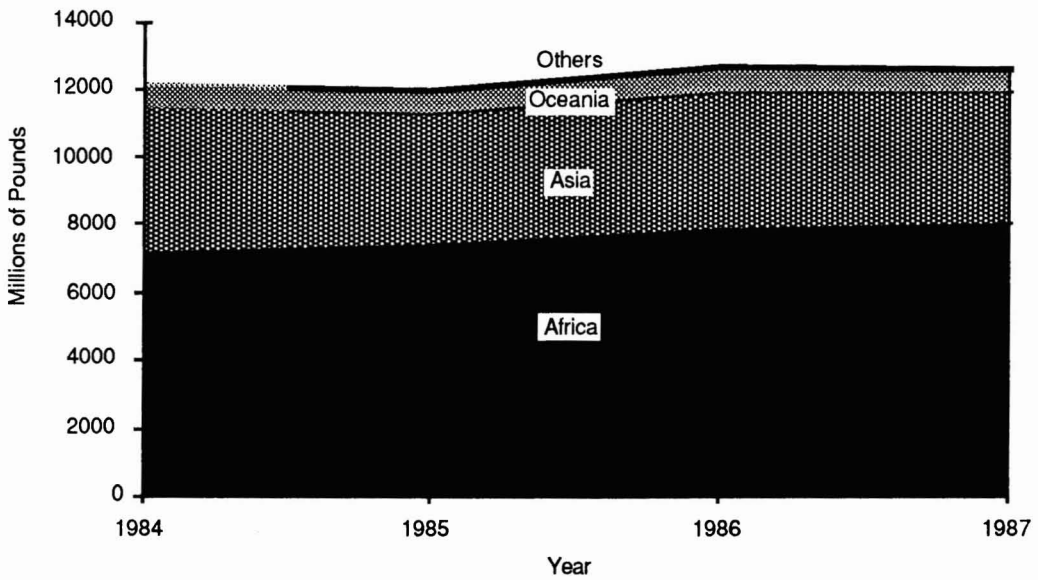
Abstract

This paper describes world production of taros, and the marketing of taro corms and leaves in Hawaii and on North America. Suggestions for the improvement of taro marketing are also provided.

Introduction

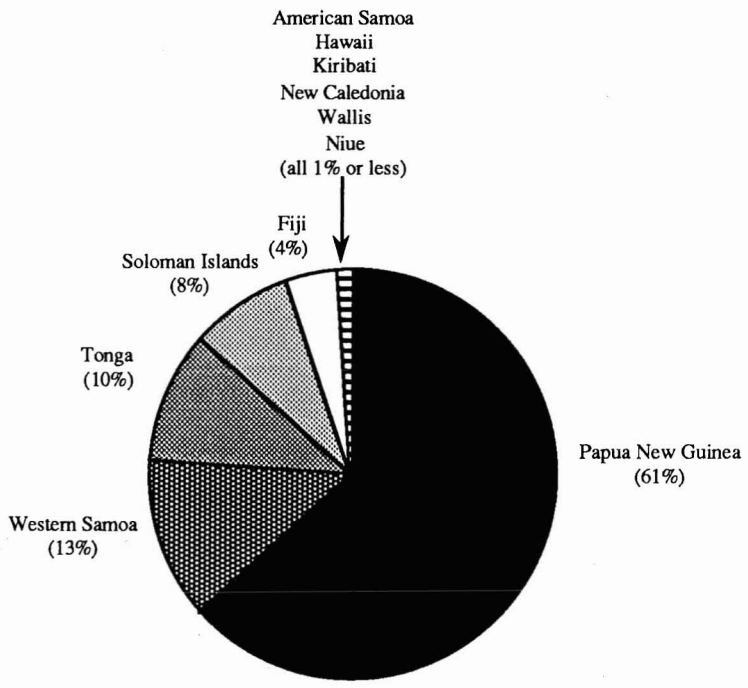
Taro forms the basis or is an intricate part of many traditional diets worldwide. In its various forms, (e.g. baked, boiled, fried, whole or mashed) taro is a nutritious food consumed by millions of people everyday. According to the FAO Production Yearbook, 12.6 billion pounds of taro (*Colocasia*) were produced worldwide from 2,440,360 acres in 1987. Major producing regions are Africa (8 billion pounds), Asia (3.9 billion pounds), and Oceania (667 million pounds) (Figure 1).

Figure 1. Major *Colocasia* Producing Regions of the World, 1987



In 1987, the countries of the Pacific region produced the following amounts of taro, in millions of pounds: Papua New Guinea (411.4), Western Samoa (85.8), Tonga (66.0), Solomon Islands (52.8), Fiji (24.2), American Samoa (8.8), Hawaii (6.8), Kiribati (6.6), New Caledonia (6.6), Wallis (4.4) and Niue (2.2). Relative shares of Pacific production are illustrated in Figure 2 (FAO Production Yearbook, 1987).

Figure 2. Taro Production in the Pacific by Percent, 1987



Until relatively recently, taro was not a big export item for most producing countries. In fact, there are no world-wide comprehensive trade figures kept for taro as are kept for its production. The main reason there was not much of a taro trade was because it was an unknown commodity outside of its traditional growing areas. Which meant then for a taro trade to become established in a new market it had to compete with other well-ingrained staples such as bread, rice, yams, and potatoes. Today the situation is changing, however, as a greater number of countries have a more diverse ethnic mix to them. And with this new mix naturally comes immigrants bringing their traditional grocery lists to their adopted homes. On the shopping lists of some Pacific Islander, Asian, Caribbean and African shoppers in Hawaii and North America are taro root, taro stalk and taro leaf.

The Taro Market in Hawaii

There are four somewhat distinct markets for taro in Hawaii: the dasheen, poi, Chinese, and Samoan markets. The dasheen, Japanese, or "sato imo" type taro (the small cormels are eaten, but the mother corm is usually not), is consumed cooked, but unprocessed, primarily by oriental consumers and is typically eaten as a side vegetable to a meal. The "poi taro" (produced under both dry and wet cultivation conditions), usually the Lehua variety for commercial usage, is more often than not processed and is the basis for two primary products: poi (the traditional Hawaiian pudding-like starch-staple) and kulolo (a equally traditional fudge-like confection). Raw corm-to-poi processing facilities presently number about 14 State-wide. The market for poi taro products is typically the "local" population and the visitor industry as an introduction to traditional Hawaiian foods at staged luaus. Chinese taro is consumed in its cooked non-processed form; as an increasingly popular snack chip (see Table 1 for more information), and in more traditional Chinese dim sum dishes. Lastly, the Samoan taros (Niue [Samoan pink], Manu'a and Palagi) are consumed almost exclusively by the Samoan population in Hawaii and very often eaten in a cooked whole form as a substantial part of a meal.

Table 1. Estimated "Made-in-Hawaii" Chip Market in Hawaii

Chip Variety	Number of Chippers	Amount of Raw Material Imported (million lb)	Amount of Raw Material Produced in Hawaii (million lb)	Amount of Finished Product (million lb)
Potato	5 (1989)	12.9 (1988) [1]	0 [1]	3.9 [2]
Taro	5 (1989)[3]	0	.6 - .7	.18 - .21

[1] Market News Service, Hawaii State Department of Agriculture, 1988.
[2] Calculated using a 30 percent conversion factor
[3] There is one additional chipper in Colorado

As each taro variety caters to a somewhat distinct clientele the demand for the product often varies throughout the year with the social activities of that clientele, for instance, the demand for Chinese taro may be higher around the time of the Chinese New Year as there are many Chinese rituals or celebrations observed at this time with taro being an important ingredient in many meals.

The supply of each taro variety depends on a number of conditions. For example, poi taros are very susceptible to flooding conditions in the valleys where they are usually grown. Chinese taro availability is governed by the former condition, along with its own price, and (often) the price of ginger, i.e. as the price of ginger goes up the supply of taro often goes down, as currently most Chinese taro farmers grow the often more profitable ginger as well. As there are no monthly production statistics kept for these two taro varieties, a look at the average of five years of 'arrivals' provides at least some insight into monthly availability of taro within the State. Note arrivals and production figures may not match due to on-site loss and usage or because the product does not pass through the market channels where statistics are being kept.

Table 2. Average Poi and Chinese Taro 'Arrivals' Within Hawaii by Weight, Month and Percentage

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total/Average Shipped
						Thousand Pounds							
1984	35	14	26	21	19	16	20	12	8	5	4	4	184
1985	24	16	17	18	15	16	20	16	13	12	5	12	184
1986	17	13	19	30	8	12	21	17	18	19	15	15	204
1987	8	10	21	10	7	9	12	18	30	10	16	19	170
1988	23	31	16	20	13	17	41	30	21	27	20	16	275
Percent=11 (5-year ave.)	8	10	10	6	7	11	9	9	7	6	6	203	

Source: Market News Service, Honolulu Arrivals, Fresh Fruit and Vegetables 1984-1988, Tables 3 & 7.

In the case of dasheen, 84 percent local demand was meet by Hawaii farmers in 1988 (Hawaii Agricultural Statistics Service). Samoan taro demand is meet almost exclusively by Western Samoa and to a lesser extent by growers in American Samoa. The demand for these varieties of taro appears to be greater than supply during most of the year, in which case both poi taros and Chinese taros are consumed by the Samoans (and other Polynesian groups) living in Hawaii. There does not appear to be a constraint on the production end in the Samoas, more that the available air-cargo space is very limited, and boat-shipped taro is often considered undesirable as the taro often arrives in less than marketable shape. The Samoan taro market in Hawaii must also compete for the limited supply with the much larger Los Angeles market. Import and production figures for Hawaii-grown taro and taro leaves, and imported taros are in Table 3.

Table 3. Hawaii Grown Taro and Imports in 1988

General Taro Variety	Amount Commercially Grown in Hawaii (lb)	Amount Imported (lb)
Dasheen	220,000	43,000
Chinese	1,100,000	0
Poi	5,700,000	0
Samoan	very little	615,000
Taro leaves	99,000[1]	0

Source: Hawaii Agricultural Statistics Service. 1989. Hawaii Vegetables Annual Summary. Honolulu, Hawaii. Data also from personal communication with agency staff.
[1] Market New Service, Hawaii State Department of Agriculture, 1988. Oahu only.

The only type of Hawaii-grown taro that is exported in any appreciable quantity to North America is the Chinese variety.

Market for Chinese-like Taros on the U.S. Mainland and Canada

The ethnic groups in the West Coast markets that eat Chinese-like taros (hereinafter just called *Chinese taro*) include the Chinese, Vietnamese, Thais, Malaysians, Filipinos, Laotians and others. These people consume taro in much the same way as do their counterparts in Hawaii. However, in the frozen section of the oriental markets in Los Angeles, nearly a dozen different processed taro-based products are available. These include taro bun, ice cream, ice bars, and tofu-like products. The major taro product that is consumed, however, is the corm itself. While it is nearly impossible to identify how much taro is going into each market, Table 4 provides a general overview of the volume supplied to the U.S. national market.

Table 4. Estimated Volume of Chinese-like Taros on the U.S. Mainland Market, Various Years

Source of Taros:	Millions of Pounds
Dominican Republic[1]	8
Florida[2]	5
Puerto Rico[3]	>1
Hawaii[4]	.5 - .7

[1] represents 20% of all taro imports from Dom. Rep. 1986 (Pers. comm. R. Brenef, Florida State-Fed. Market News Service)
[2] average yield of 10,000 lbs/acre * 500 acres in production 1987 (Pers. comm. R. Brenef, Florida State-Fed. Market News Service)
[3] Estimated, no trade statistics kept as it is considered part of U.S.
[4] 1988 estimated

Fresh taro leaves and taro stems are marketed in Hawaii and on North America. Taro leaves are a traditional part of Hawaiian luaus as Laulau, are eaten by Samoans as Palusami, and the peoples of the Caribbean region consume taro leaves in various types of soups, e.g. Callaloo. Taro stems are commercially produced in green houses in California and are eaten by the Vietnamese and other Asian groups. The Vietnamese use the stems in soups as well as in other dishes. Countries importing taro leaves to the U.S. in 1986 are listed in Table 5. It is unknown how much fresh and frozen taro leaves are shipped from Hawaii to North America.

Table 5. Imports of Dasheen (taro) Leaves to the U.S. for the Fiscal Year Ending September 30, 1986

Exporting Country	Port of Entry	Amount in Pounds
Brazil	Los Angeles	16,500
Dominican Republic	New York City	61,600
	Miami	1,100
	San Juan, PR	20,000
Jamaica	New York City	158,000
Japan	Los Angeles	4,400
Leeward/Windward Is (Caribbean)	New York City	5,600
Trinidad and Tobago (Caribbean)	New York City	25,700
TOTAL		292,900

Source: U.S. Imports of Fruits and Vegetables Under Plant Quarantine Regulations, Fiscal Year 1986. U.S. Department of Agriculture, Economic Research Division, Commodity Economics Division.

Almost all of the Hawaii-grown Chinese taro produced for export goes to West Coast Markets. Florida growers market their Chinese taros in Florida, New York and Philadelphia. As for the Dominican Republic, their taros are barged to Miami where they are sometimes repacked, and then trucked all over the U.S. and Canada. (For more information on marketing names, countries, market shares, prices, and landing destination see the tables in Appendices 1 & 2. *Note that these tables represent data for all types and qualities of taros that were imported*).

While Hawaii-grown Chinese taro has a relatively small market share in Los Angeles, there is potential for growth. According to industry sources, Chinese taros from Hawaii (the number one choice of those in the business in Los Angeles) have a better taste and a more distinct aroma than their closest competitor; the Dominican Republic. These taros also enjoy some name recognition (if packed in a green bag) and have a somewhat longer shelf-life than the others. On the down side, Hawaii's prices are higher and supply is inconsistent. Table 6 provides some insight into the problems and offers some solutions.

Table 6. The Current View of Hawaii-Grown Chinese Taro by Marketers in Los Angeles

Positive Attributes	Negative Attributes	Marketer's Suggestions for Change
♦Unique aroma		
♦Good flavor		
♦Some name recognition		
♦Slightly better shelf-life than competitors	.....	See suggestion below for "Rotten corms"
	♦Short weight bags	Pack a little extra to cover shrinkage
	♦Rotten corms in shipment	Harvest at most 2 days before shipping, final wash corms in chlorinated water, let dry, keep corms cool (put in cooler 42-52 ^{o}F), export only quality uncut corms. Sort corms by size. Try boxes.
	♦High price	Pool materials and manpower with other farmers to reduce costs
	♦Inconsistent supply	Plan your production with your shipper so that you produce/sell all year
	♦Not enough product definition ...	Develop promotional materials and advertise in ethnic media
	♦Little nutritional data on products (especially fresh taro leaves)	Contact University nutritionists for data, look at store for examples

Source: Interviews with L.A. shippers by James Lee of May Produce and the author.

Hawaii-Grown Taro in the Canadian Market

Hawaii taros in the Canadian market (which is importing from areas such as Taiwan) may also have some growth potential. The number of Asians living in the Vancouver area and elsewhere is expected to increase dramatically in the next few years as the U.S. and Canada are allowing up to 20,000 immigrants to enter their respective countries each year. This fact is especially true as many Hong Kong residents are moving to Canada in expectation of the country reverting back to Mainland China in 1997. If Hawaii makes a concerted effort to organize its marketing in the area by working with Canadian importers now (assuming a quality standard and consistent supply can be maintained), many people feel that profitable inroads in this market can be made.

Acknowledgements

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APPENDIX 1

Table 7. The Names of Taro's in Different Locals*

Scientific Name		Hawaii	Los Angeles	Florida
Colocasia esculenta var. *esculenta*	-Bun Long	Chinese taro, Dryland taro	Chinese or Hawaii taro root, Poi potato	Malanga isleña *taro, dasheen, eddo*
	-Lehua	Hawaiian taro, Poi or wetland taro	*imported here?*	*imported here?*
	-Niue	Samoan taro	Samoan pink	*imported here?*
Colocasia esculenta var. *antiquorum* or var. *globuferia*		Dasheen (Araimo)	Sato Imo, Japanese taro, eddos	Taro, eddos
Xanthosoma sp.		*imported here?*	Malanga	Malanga

* Producing areas include Hawaii, Florida, Western Samoa, Dominican Republic, Costa Rica and so forth.

APPENDIX 2

Table 8. Quantity and Value of Imports of Dasheens (various taro species) Fresh and Frozen into the U.S., by Source, Landing Coast, and Mode of Transportation

Country	Mode	Reg	Yr	Quantity (lb)	F.A.S.	C.I.F.	Charges
TOTAL			81	38,070,301	$7,059,386	$ 9,723,301	$2,663,615
			82	38,412,933	6,384,885	8,719,788	2,334,903
			83	37,498,699	6,513,157	8,809,047	2,295,890
			84	42,701,357	7,138,655	9,756,198	2,617,543
			85	55,862,428	9,057,144	12,139,522	3,082,378
			86	47,430,616	8,334,944	11,040,893	2,705,949
ARGENT	V	E	85	77,161	19,250	26,000	6,750
BELGIUM	V	E	83	8,400	10,731	12,044	1,313
BRAZIL	A	W	82	15,890	4,941	13,851	8,910
			83	33,376	6,715	24,892	18,177
			84	37,788	5,082	27,874	22,792
			85	14,943	3,370	10,519	7,149
	N	E	85	89,962	21,938	33,953	12,015
			86	230,590	40,569	61,643	21,074
	V	E	83	30,500	8,890	12,452	3,562
			85	25,556	5,796	8,947	3,151
	V	W	86	12,698	2,880	4,917	2,037
C AF RP	V	W	85	11,483	2,349	3,223	874
C RICA	N	E	83	1,025,958	216,245	285,159	68,914
	O	E	81	6,000	1,800	1,848	48
	V	E	81	195,646	30,222	40,731	10,509
			82	336,926	56,414	76,841	20,427
			83	136,266	26,928	32,568	5,640
			84	1,687,740	266,105	376,578	110,473
			85	1,277,718	194,103	274,051	79,948
			86	1,939,130	308,094	429,741	121,647
	V	W	81	82,450	10,565	21,713	11,148
			82	6,305	2,035	2,597	562
			83	11,066	5,005	6,948	1,943
			84	3,803	675	1,082	407
			85	67,111	20,950	29,653	8,703
			86	56,533	17,865	24,495	6,630
CANADA	O	E	81	3,120	688	688	
			84	1,870	561	561	
			85	18,000	2,513	2,513	
	O	W	85	1,236	2,872	2,872	
CHINA M	A	E	84	3,600	540	1,418	878
	V	W	81	36,540	4,860	6,841	1,981
			82	138,699	18,709	25,568	6,859
			83	137,329	15,876	21,864	5,988
			84	120,788	17,726	24,176	6,450
			85	90,706	16,415	23,371	6,956
			86	119,847	20,618	28,110	7,492
CHINA T	V	E	85	39,682	5,580	12,135	6,555
	V	W	84	9,710	7,904	8,517	613
			85	1,560	1,404	1,659	255
			86	99,326	35,390	38,708	3,318

Country	Mode	Reg	Yr	Quantity (lb)	F.A.S.	C.I.F.	Charges
COLOMB	A	E	84	3,510	674	2,814	2,140
DOM REP	A	E	81	67,775	8,037	14,067	6,030
			82	21,180	2,520	3,698	1,178
			83	10,912	1,658	2,841	1,183
			84	2,960	1,332	1,681	349
	N	E	81	33,653,210	5,848,543	7,863,540	2,014,997
			82	34,283,799	5,275,618	7,047,443	1,771,825
			83	32,842,473	5,215,023	6,825,332	1,610,309
			84	36,006,498	5,524,129	7,215,913	1,691,784
			85	43,382,881	6,176,835	8,171,062	1,994,227
			86	34,547,795	5,255,308	6,882,984	1,627,676
	N	W	84	33,350	7,827	10,850	3,023
	V	E	81	1,419,603	246,016	324,970	78,954
			82	1,312,890	254,379	322,903	68,524
			83	177,350	24,899	33,641	8,742
			84	790,402	93,268	137,761	44,493
			85	6,626,804	1,304,106	1,707,983	403,877
			86	7,219,841	1,489,545	1,944,809	455,264
	V	W	84	5,526	2,818	3,633	815
DOMINCA	V	E	81	1,995	750	903	153
			83	690	680	994	314
			86	38,601	11,594	13,254	1,660
FIJI	A	H	84	3,150	764	1,445	681
	A	W	83	96,541	32,058	58,042	25,984
			84	387,097	115,088	222,911	107,823
			85	15,650	5,634	9,763	4,129
			86	91,000	21,501	43,893	22,392
	V	H	83	1,500	1,225	1,582	357
FINLAND	A	H	86	9,306	3,165	5,695	2,530
	N	W	86	53,251	18,901	30,961	12,060
FR GERM	V	E	86	13,400	1,608	2,468	860
FR POLY	A	H	84	1,980	720	1,951	1,231
FRANCE	A	E	81	14,195	1,758	2,883	1,125
			83	5,000	500	970	470
	V	E	81	5,000	600	820	220
			84	3,000	356	656	300
GUATMAL	A	E	82	12,831	5,774	8,337	2,563
	V	E	84	18,550	1,484	3,312	1,828
HAITI	A	E	81	32,490	3,942	7,075	3,133
			82	5,400	648	1,144	496
			83	25,515	5,400	8,096	2,696
			85	25,000	6,750	9,750	3,000
	N	E	82	60,868	7,653	11,849	4,196
HG KONG	V	W	82	17,920	2,667	3,684	1,017
			83	17,500	2,871	3,963	1,092
			84	21,910	2,262	3,281	1,019
			86	31,818	8,482	10,251	1,769
HONDURA	V	E	81	79,620	8,332	12,748	4,416
			84	44,032	4,768	7,762	2,994
			85	46,800	5,940	8,464	2,524
			86	36,000	4,000	6,510	2,510
ITALY	A	E	83	3,571	640	1,240	600

Country	Mode	Reg	Yr	Quantity (lb)	F.A.S.	C.I.F.	Charges
			85	3,439	2,866	3,743	877
			86	8,089	4,400	5,734	1,334
JAMAICA	A	E	81	2,895	354	597	243
			83	3,677	968	1,565	597
			84	32,284	7,292	13,952	6,660
			85	137,033	30,613	56,772	26,159
			86	14,425	6,869	8,942	2,073
	N	E	81	324,523	110,148	155,313	45,165
			82	468,500	97,972	147,799	49,827
			83	926,547	189,999	330,294	140,295
			84	1,513,599	292,058	510,652	218,594
			85	1,205,201	368,506	562,450	193,944
			86	1,203,228	457,056	606,309	149,253
	V	E	85	29,000	3,863	5,095	1,232
			86	1,451	1,520	2,620	1,100
JAPAN	N	E	86	39,385	29,187	34,529	5,342
	N	H	84	8,352	7,969	10,105	2,136
	V	E	81	27,500	35,979	47,574	11,595
			82	37,937	52,235	64,056	11,821
			83	53,472	33,064	42,159	9,095
			84	41,138	53,952	65,534	11,582
			85	27,500	24,668	28,330	3,662
			86	2,420	2,398	2,562	164
	V	H	81	1,320	2,394	2,799	405
			83	6,934	6,148	8,205	2,057
			85	7,700	7,075	8,030	955
			86	3,080	3,897	4,720	823
	V	W	81	71,531	78,608	85,589	6,981
			82	82,962	90,124	96,725	6,601
			83	99,417	95,686	103,268	7,582
			84	134,160	155,341	166,244	10,903
			85	231,381	179,502	198,409	18,907
			86	271,198	194,786	212,560	17,774
KOR REP	A	W	81	12,500	4,086	7,375	3,289
MEXICO	O	E	81	40,500	24,300	24,300	
			83	71,232	24,085	24,085	
			84	60,342	1,916	1,916	
			85	156,700	49,673	49,673	
	O	W	82	32,400	7,560	7,560	
			83	85,153	17,071	17,071	
			84	243,080	72,856	72,856	
			85	52,134	10,835	10,835	
			86	40,686	13,008	13,008	
N ANTIL	V	E	81	3,550	305	411	106
N ZEAL	A	W	83	600	996	1,321	325
NETHLDS	V	E	85	15,000	1,750	2,438	688
NICARAG	V	E	81	41,325	8,265	12,007	3,742
PARAGUA	V	W	86	36,700	4,100	5,100	1,000
PHIL R	A	E	85	8,432	2,486	8,380	5,894
PORTUGL	A	E	81	15,872	4,680	12,482	7,802
			82	116,347	36,363	86,121	49,758
			83	169,340	59,109	124,205	65,096

Country	Mode	Reg	Yr	Quantity (lb)	F.A.S.	C.I.F.	Charges
			84	125,111	39,884	94,156	54,272
			85	23,907	7,131	18,796	11,665
			86	38,691	11,251	28,759	17,508
	N	E	81	270,411	72,620	137,567	64,947
			82	187,562	61,119	100,167	39,048
			83	141,218	53,588	75,177	21,589
			84	272,760	95,375	183,098	87,723
			85	370,148	114,060	194,714	80,654
			86	274,513	87,925	199,999	112,074
	V	E	81	37,479	11,820	17,928	6,108
			82	10,406	3,210	5,272	2,062
			83	17,800	6,944	9,003	2,059
			86	23,076	7,297	10,944	3,647
S LUCIA	A	E	84	938	825	1,188	363
S VN GR	A	E	86	1,640	1,099	1,477	378
	V	E	86	28,875	7,012	7,998	986
SPAIN	A	E	81	3,527	1,260	3,258	1,998
TONGA	V	W	82	7,630	1,526	2,682	1,156
			85	39,683	4,858	7,500	2,642
TRINID	A	E	82	663	332	847	515
			83	450	500	1,190	690
			84	3,610	3,721	4,987	1,266
			86	10,186	8,300	12,592	4,292
	N	E	81	27,885	7,025	11,375	4,350
	V	E	83	2,100	462	572	110
VENEZ	A	E	83	257,594	66,239	88,545	22,306
			84	31,856	9,641	13,383	3,742
			85	20,000	4,000	6,429	2,429
	N	E	84	121,265	23,786	34,204	10,418
	V	E	85	87,088	7,960	14,845	6,885
			86	45,635	11,700	14,717	3,017
W SAHAR	A	H	81	10,000	3,488	5,400	1,912
	A	W	81	10,000	3,000	5,631	2,631

Country	Mode	Reg	Yr	Quantity (lb)	F.A.S.	C.I.F.	Charges
W SAMOA	A	E	86	6,000	3,600	5,266	1,666
	A	H	81	292,214	99,025	188,040	89,015
			82	34,660	9,270	18,585	9,315
			83	27,000	10,322	14,249	3,927
			84	67,657	24,611	40,007	15,396
			86	80,352	15,426	34,289	18,863
	A	W	81	397,696	140,884	250,398	109,214
			82	2,500	750	1,714	964
			83	17,550	5,460	9,935	4,475
	N	H	81	866,504	280,250	447,533	167,283
			82	1,072,391	349,593	587,418	237,825
			83	823,881	289,877	510,642	220,765
			84	599,537	204,646	373,547	168,901
			85	472,290	147,209	238,801	91,592
	N	W	81	15,425	4,782	8,897	4,115
			82	146,267	43,473	82,927	39,454
			83	230,787	77,295	114,933	37,638
			84	215,660	83,870	106,030	22,160
	O	W	84	9,000	2,565	3,608	1,043
	V	W	84	33,744	4,264	6,555	2,291
			85	1,163,539	294,284	388,364	94,080
			86	801,850	224,593	300,329	75,736

Source: U.S. Import Statistics for Agricultural Commodities, 1981-1986.

Key:

Mode (of transport to the U.S.) = V= by ship; A= by airplane; O = overland transport, commodities released into U.S. consumption channels from bonded storage warehouses and/or from U.S. foreign trade zones, N= Undetermined mode of transport.

Reg(ion) of first off-load: W= Alaska, Arizona, California, Montana, Oregon and Washington; H= Hawaii, E= all other U.S. ports.

Year = Calendar year.

F.A.S. = Free Along Side: Farm gate price and in-country shipping (customs value); does not include freight, insurance, U.S. custom duties, or other transport costs in U.S.

C.I.F. = Cost Insurance and Freight: F.A.S. value plus freight and insurance; does not include U.S. custom duties or other transport costs in U.S.

Charges = Is the difference between C.I.F. and F.A.S. prices.

Table 9. Quantity, Value and Market Ranking of Imports of Dasheens (various taro species) Fresh and Frozen into the U.S., by Year

	YEAR					
	81	82	83	84	85	86
F.A.S. PRICE ($/lb):						
Highest	1.16	1.17	1.66	1.18	.83	.81
Country	JAPAN	JAPAN	N ZEAL	JAPAN	ITALY	TRINID
Lowest	.08	.12	.10	.08	.11	.11
Country	N ANTIL	HAITI	FRANCE	GUATMAL	VENEZ	HONDURA
Average F.A.S. Price	.18	.16	.17	.16	.16	.17
MAJOR SUPPLIER:						
Country	DOM REP	DOM REP	DOM REP	DOM REP	DOM REP	DOM REP
Average FA.S. Price ($/lb)	.17	.15	.15	.15	.14	.16
Market share(%)	92.30	92.72	88.08	86.27	89.52	88.06
Quantity (lb)	35,140,588	35,617,869	33,030,735	36,838,736	50,009,685	41,767,636
TOTAL:						
Quantity (lb)	38,070,301	38,412,933	37,498,699	42,701,357	55,862,428	47,430,616
F.A.S. ($)	7,059,386	6,384,885	6,513,157	7,138,655	9,057,144	8,334,944

Source: K. Wanitprapha and K. Yokoyama, personal communication
Note: Calculated prices may be off by as much as $.01 due to truncation of data.

Table 10. Market Share of Imports of Dasheens (various taro species) Fresh and Frozen into the U.S., by Source and Year

Market Share in Percent

Country	81	82	83	84	85	86
ARGENT					.13	
BELGIUM			.02			
BRAZIL		.04	.17	.08	.23	.51
C AF RP					.02	
C RICA	.74	.89	3.12	3.96	2.40	4.20
CANADA	.00			.00	.03	
CHINA M	.09	.36	.36	.29	.16	.25
CHINA T				.02	.07	.20
COLOMB				.00		
DOM REP	92.30	92.72	88.08	86.27	89.52	88.06
DOMINCA	.00		.00			.08
FIJI			.26	.91	.02	.19
FINLAND						.13
FR GERM						.02
FR POLY				.00		
FRANCE	.05		.01	.00		
GUATMAL		.03		.04		
HAITI	.08	.17	.06		.04	
HG KONG		.04	.04	.05		.06
HONDURA	.20			.10	.08	.07
ITALY			.00		.00	.01
JAMAICA	.86	1.21	2.48	3.62	2.45	2.57
JAPAN	.26	.31	.42	.43	.47	.66
KOR REP	.03					
MEXICO	.10	.08	.41	.71	.37	.08
N ANTIL	.00					
N ZEAL			.00			
NETHLDS					.02	
NICARAG	.10					
PARAGUA						.07
PHIL R					.01	
PORTUGL	.85	.81	.87	.93	.70	.70
S LUCIA				.00		
S VN GR						.06
SPAIN	.00					
TONGA		.01			.07	
TRINID	.07	.00	.00	.00		.02
VENEZ			.68	.35	.19	.09
W SAHAR	.05					
W SAMOA	4.12	3.26	2.93	2.16	2.92	1.87

Source: K. Wanitprapha and K.Yokoyama, personal communication
Note: Calculated prices may be off by as much as $.01 due to truncation of data.

Table 11. Quantity and F.A.S. Prices of Dasheens (various taro species) Fresh and Frozen into the U.S., by Year

	[----------Quantity (LB)----------]						[----------F.A.S. Price ($/LB)----------]					
Country	81	82	83	84	85	86	81	82	83	84	85	86
ARGENT					77,161						.24	
BELGIUM			8,400						1.27			
BRAZIL		15,890	63,876	37,788	130,461	243,288		.31	.24	.13	.23	.17
C AF RP					11,483						.20	
C RICA	284,096	343,231	1,173,290	1,691,543	1,344,829	1,995,663	.14	.17	.21	.15	.15	.16
CANADA	3,120			1,870	19,236		.22			.30	.27	
CHINA M	36,540	138,699	137,329	124,388	90,706	119,847	.13	.13	.11	.14	.18	.17
CHINA T				9,710	41,242	99,326				.81	.16	.35
COLOMB				3,510						.19		
DOM REP	35,140,588	35,617,869	33,030,735	36,838,736	50,009,685	41,767,636	.17	.15	.15	.15	.14	.16
DOMINCA	1,995		690			38,601	.37		.98			.30
FIJI			98,041	390,247	15,650	91,000			.33	.29	.36	.23
FINLAND						62,557						.35
FR GERM						13,400						.12
FR POLY				1,980						.36		
FRANCE	19,195		5,000	3,000			.12		.10	.11		
GUATMAL		12,831		18,550				.45		.08		
HAITI	32,490	66,268	25,515		25,000		.12	.12	.21		.27	
HG KONG		17,920	17,500	21,910		31,818		.14	.16	.10		.26
HONDURA	79,620			44,032	46,800	36,000	.10			.10	.12	.11
ITALY			3,571		3,439	8,089			.17		.83	.54
JAMAICA	327,418	468,500	930,224	1,545,883	1,371,234	1,219,104	.33	.20	.20	.19	.29	.38
JAPAN	100,351	120,899	159,823	183,650	266,581	316,083	1.16	1.17	.84	1.18	.79	.72
KOR REP	12,500						.32					
MEXICO	40,500	32,400	156,385	303,422	208,834	40,686	.60	.23	.26	.24	.28	.31
N ANTIL	3,550						.08					
N ZEAL			600						1.66			
NETHLDS					15,000						.11	
NICARAG	41,325						.20					
PARAGUA						36,700						.11
PHIL R					8,432						.29	
PORTUGL	323,762	314,315	328,358	397,871	394,055	336,280	.27	.32	.36	.34	.30	.31
S LUCIA				938						.87		
S VN GR						30,515						.26
SPAIN	3,527						.35					
TONGA		7,630			39,683			.20			.12	
TRINID	27,885	663	2,550	3,610		10,186	.25	.50	.37	1.03		.81
VENEZ			257,594	153,121	107,088	45,635			.25	.21	.11	.25
W SAHAR	20,000						.32					
W SAMOA	1,571,839	1,255,818	1,099,218	925,598	1,635,829	888,202	.33	.32	.34	.34	.26	.27

Source: K. Wanitprapha and K. Yokoyama, personal communication
Note: Calculated prices may be off by as much as $.01 due to truncation of data.

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